CLAIMS:

We Claim:

1. A mold release agent precursor for making a mold releasing agent, the mold release agent precursor having a total weight and comprising:

a polymer resin; and

a conductivity enhancing agent dispersed in the polymer resin, the conductivity enhancing agent being present in effective amount and dispersion to impart a surface resistivity of less than 1 X 10^{12} ohms/in^2 in the mold release agent upon curing of the polymer resin.

2. The mold release agent precursor of claim 1, wherein the conductivity enhancing agent is mixed substantially homogeneously in the polymer resin.

3. The mold release agent precursor of claim 1, wherein the polymer resin comprises a curable silicone epoxy resin.

4. The mold release agent precursor of claim 3, wherein the curable silicone epoxy resin comprises a water-based resin.

5. The mold release agent precursor of claim 3, wherein:

the curable silicone epoxy resin comprises a mixture of a silicone resin and an epoxy resin; and

a ratio of the silicone resin to the epoxy resin ranges from about 1:4 to about 4:1 parts by weight.

6. The mold release agent precursor of claim 3, wherein the curable silicone epoxy resin is formed of sufficient amounts of silicone and epoxy resins to impart, upon curing of the silicone epoxy resin, a non-stick release adhesion of about 20 g/in by TAPPI 502; an ultimate contact angle (water) of 85 degrees to 99 degrees by goniometer; and a pencil hardness

of up to 2H to 3H (scratch) and up to 3H to 4H (gouge) by ASTM D3363.

7. The mold release agent precursor of claim 3, wherein the conductivity enhancing agent comprises carbon particles.

8. The mold release agent precursor of claim 7, wherein carbon particles comprise carbon black.

9. The mold release agent precursor of claim 8, wherein the carbon black comprises furnace-formed carbon black.

10. The mold release agent precursor of claim 8, wherein the carbon black is present in the mold release agent precursor in an amount greater than two weight percent of the total weight of the mold release agent precursor.

11. The mold release agent precursor of claim 8, wherein the carbon black is present in the mold release agent precursor in an amount greater than three weight percent of the total weight of the mold release agent precursor.

12. The mold release agent precursor of claim 8, wherein the carbon black is present in the mold release agent precursor in an amount in a range of three weight percent to seven weight percent of the total weight of the mold release agent precursor.

13. The mold release agent precursor of claim 7, wherein the conductive carbon particles are present in the mold release agent precursor in an amount greater than two weight percent of the total weight of the mold release agent precursor.

14. The mold release agent precursor of claim 7, wherein the conductive carbon particles are present in the mold release agent precursor in an amount greater than three weight percent of the total weight of the mold release agent precursor.

15. The mold release agent precursor of claim 7, wherein the conductive carbon particles are present in the mold release agent precursor in an amount in a range from three weight percent to seven weight percent of the total weight of the mold release agent precursor.

16. The mold release agent precursor of claim 1, wherein the mold release agent precursor is in an uncured state.

17. The mold release agent precursor of claim 1, further comprising a gas in a mixture with the mold release agent to form a mist.

18. The mold release agent precursor of claim 1, wherein the surface resistivity is in a range of 1.0 X 10^6 ohms/in^2 to 1 X 10^{12} ohms/in^2.

19. A method for making a mold release agent, the method comprising:

mixing a conductivity enhancing agent with a polymer resin to form a mold release agent precursor, and

curing the mold release agent precursor to form the mold release agent having a total weight, the mold release agent having a surface resistivity less than 1 X 10^{12} ohms/in^2.

20. A method of providing a mold with a mold release agent, the method comprising:

providing the mold to present a surface ready for receipt of a curable mold release agent precursor;

coating the surface of the mold with the curable mold release agent precursor that comprises a conductivity enhancing agent mixed with a polymer resin; and

curing the mold release agent precursor to obtain the mold release agent, the mold release agent having a total weight and a surface resistivity of less than about 1 x 10^{12} ohms/in^2.

21. The method of claim 20, wherein the conductivity enhancing agent is substantially homogeneous mixed in the polymer resin.

22. The method of claim 20, wherein the polymer resin comprises a silicone epoxy resin.

23. The method of claim 22 wherein the silicone epoxy resin comprises a water-based resin.

24. The method of claim 22, wherein the silicone epoxy resin comprises a silicone component and an epoxy component in a ratio ranging from about 1:4 to about 4:1 parts by weight.

25. The method of claim 22, wherein the mold release agent has a non-stick release adhesion of about 20 g/in by TAPPI 502; an ultimate contact angle (water) of 85 degrees to 99 degrees by goniometer; and a pencil hardness of up to 2H to 3H (scratch) and up to 3H to 4H (gouge) by ASTM D3363.

26. The method of claim 20, wherein the conductivity enhancing agent comprises conductive carbon particles.

27. The method of claim 26, wherein the conductive carbon particles comprise a conductive form of carbon black.

28. The method of claim 27, wherein the conductive form of carbon black comprises furnace-formed carbon black.

29. The method of claim 27, wherein the carbon black is present in the polymer resin in an amount greater than two weight percent carbon black based on the total weight of the mold release agent.

30. The method of claim 29, wherein the carbon black is present in the polymer resin in an amount greater than three weight percent carbon black based on the total weight of the mold release agent.

31. The method of claim 27, wherein the carbon black is present in the polymer resin in an amount ranging from three weight percent to seven weight percent carbon black based on the total weight of the mold release agent.

32. The method of claim 26, wherein the conductive carbon particles are present in the polymer resin in an amount greater than two weight percent carbon based on the total weight of the mold release agent.

33. The method of claim 26, wherein the conductive carbon particles are present in the polymer resin in an amount greater three weight percent carbon based on the total weight of the mold release agent.

34. The method of claim 26, wherein the conductive carbon particles are in the polymer resin in an amount in a range from three weight percent to seven weight percent carbon based on the total weight of the mold release agent.

35. The method according to claim 20, wherein said coating comprises spray coating the mold release agent precursor onto the surface of the mold.

36. A coated mold comprising:

a mold presenting a contact surface shaped for conformably shaping mold contents placed into contact with the mold; and

a mold release agent covering the contact surface, the mold release agent including a cured composition comprising conductive carbon particles dispersed in a non-stick polymer in effective amounts to impart a surface resistivity less than 1×10^{12} ohms/in^2.

37. The mold of claim 36, wherein the mold release agent comprises a substantially homogeneous mixture of the conductivity enhancing agent and the non-stick polymer.

38. The mold of claim 36, wherein the non-stick polymer is formed from a silicone epoxy resin.

39. The mold of claim 38, wherein the silicone epoxy resin comprises a three component grafted silicone epoxy resin.

40. The mold of claim 38, wherein the silicone epoxy resin comprises a silicone component and an epoxy component in a ratio ranging from 1:4 to 4:1 parts by weight of the silicone component to the epoxy component.

41. The mold of claim 38, wherein the mold release agent has a non-stick release adhesion of about 20 g/in by TAPPI 502; an ultimate contact angle (water) of 85 degrees to 99 degrees by goniometer; and a pencil hardness of up to 2H to 3H (scratch) and up to 3H to 4H (gouge) by ASTM D3363.

42. The mold of claim 38, wherein the conductivity enhancing agent comprises carbon particles.

43. The mold of claim 42, wherein carbon particles comprise carbon black.

44. The mold of claim 43, wherein the carbon black comprises furnace-formed carbon black.

45. The mold of claim 43, wherein the carbon black constitutes more than two percent by weight of the mold release agent.

46. The mold of claim 43, wherein the carbon black constitutes more than three percent by weight of the mold release agent.

47. The mold of claim 43, wherein the carbon black is present in the mold release agent in an amount in a range from three percent to seven percent by weight of the mold release agent.

48. The mold of claim 42, wherein the carbon particles are present in the mold release agent in an amount greater than two weight percent of the mold release agent.

49. The mold of claim 42, wherein the carbon particles are present in the mold release agent in an amount greater than three weight percent of the mold release agent.

50. The mold of claim 42, wherein the carbon particles are present in the mold release agent in an amount ranging from three weight percent to seven weight percent of the mold release agent.

51. The mold of claim 36, wherein the mold release agent has a surface resistivity ranging from 1×10^6 ohms/in^2 to 1×10^{12} ohms/in^2.

52. A method of shaping materials using

a mold having a cavity presenting a contact surface shaped for comformably shaping contents placed into the cavity, and

a mold release agent covering the contact surface,

the method comprising:

placing contents into the mold for shaping in contact with the mold release agent, the mold release agent being formed from a composition comprising conductive carbon particles mixed to a dispersion with a silicone epoxy resin in effective amounts to impart, upon curing of the silicone epoxy resin, a surface resistivity less than 1×10^{12} ohms/in^2 to the mold release agent;

molding the contents into a predetermined shape; and

removing the contents from the mold.